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DISAPPROVAL OF THE OU#3 REMEDIAL INVESTIGATION AND FEASIBILITY STUDY WORK PLAN

07-29-92

USEPA/DOE-FN
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LETTER

U-005-707.12

ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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REPLY TO THE ATTENTION OF:

JUL 29 1992

HRE-8J

Mr. Jack R. Craig
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

RE: Disapproval of the OU #3
Remedial Investigation and
Feasibility Study Work Plan

Dear Mr. Craig:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Operable Unit #3 Remedial Investigation (RI) and Feasibility Study (FS) Work Plan. The Purpose of the plan was to provide the framework for sampling and analysis of the components in the Production Area, and to support development of the Field Implementation Plans (FIPs). The FIPs were to be submitted in the future, and were not to require extensive review by U.S. EPA. However, the RI/FS Work Plan for OU #3 does not provide a clear overall framework for the RI; including the sampling approach or rational, the required data quality objectives and intended data usage, or the collection of defensible quantitative data that can be used to support RI/FS data needs. This document requires extensive revisions before it can be approved by U.S. EPA.

On July 14, 1992, a conference call between the United States Department of Energy (U.S. DOE) and U.S. EPA was held to discuss the Work Plan, and on July 21, 1992, U.S. EPA, U.S. DOE, and the Ohio Environmental Protection Agency met to discuss the Work Plan. Due to the large number of comments and the need for significant revisions to the document, U.S. EPA and U.S. DOE agreed to postpone U.S. DOE's revision of the Work Plan until further discussions occurred. During the meeting it was agreed that U.S. EPA would submit its comments on the Work Plan. U.S. DOE will develop a model Sampling Plan for a Level I/II Category Component, and submit the Plan to U.S. DOE in two (2) weeks. After U.S. EPA and U.S. DOE discuss the Sampling Plan, U.S. DOE will submit a revised OU #3 Work Plan.

AUG 12 1992

Therefore, U.S. EPA hereby disapproves the OU #3 Work Plan Pending incorporation of the attached comments, and completion of further actions as previously discussed.

Please contact me at (312/FTS) 886-0992 if you have any questions.

Sincerely,

James A. Saric
Remedial Project Manager

cc: Graham Mitchell, OEPA-SWDO
Pat Whitfield, U.S. DOE-HDQ
Dennis Carr, WMCO

TECHNICAL REVIEW COMMENTS
OPERABLE UNIT NUMBER 3 (OU3)
REMEDIAL INVESTIGATION WORK PLAN

GENERAL COMMENTS

1. The Operable Unit (OU) 3 remedial investigation (RI) work plan will require considerable restructuring to address U.S. Environmental Protection Agency (EPA) comments. The document is intended to guide contractors and U.S. Department of Energy (DOE) staff in the development of field implementation procedures (FIP) and to provide regulatory agencies and the public with a complete understanding of the OU3 RI approach. The document is difficult to follow and incomplete. Critical decision elements have not been presented and will need to be presented within FIPs, requiring excessive regulatory review and time delays in implementing the OU3 RI. The DOE should make an effort to streamline the document, providing a clear framework for decision making, without providing unnecessary information.

2. In order to approve this version of the work plan, EPA will have to conduct extensive reviews of the individual FIPs because critical elements of the sampling approach are not provided in the work plan. Therefore, EPA will require more detail than the sampling plan (Appendix D) currently provides to be incorporated into this document. EPA suggests that DOE develop model protocols for all Level II component categories at each level of significance S (i.e. S1, S2, and S3).

3. The remedial investigation (RI) work plan should provide a framework for RI field sampling activities such that extensive review of FIPs for specific OU3 components is not necessary. Using the RI work plan and the site-wide CERCLA quality assurance project plan (SCQ), DOE contractors should be able to create FIPs for addressing individual components without having to incorporate the level of detail currently required for removal action (RA) work plans. The RI work plan does not accomplish this objective.

   The field sampling procedures included in Volume IV do not contain enough detail to stand alone. Moreover, according to the RI (Section D.8.4.2), over 110 different procedures must still be developed. The first issue can be addressed by referencing the SCQ procedures and removing those abstracts included in Volume IV. The second issue will necessitate the review of new procedures as they are developed, either as modifications to the SCQ or within each FIP.

Critical sample-specific handling criteria have not been included or referenced. For instance, required sample volumes, sample containerization, sample preservation, sample holding times, required quality control sample frequency (by analytical method), and sample chain-of-custody criteria should be referenced to the SCQ or summarized in the RI work plan.

The data quality objectives (DQO) are not clearly presented or linked to sampling protocols. The DQOs, such as rationale for choosing the number of samples, locations of samples, the proper analytical support level (ASL), and specific analytical protocol, should be explicitly stated and tied directly to specific components of the sampling plan (SP).

4. The OU3 RI should provide defensible data that are useable for risk assessment purposes. DOE's current approach appears to use the a significance of risk factor (S) to determine the ASL and the priority of investigation. DOE ties increasing S directly to increased levels of contamination, which may not be appropriate. DOE's approach requires more analytical detail for higher S levels. DOE's current definition of S does not take into account other critical risk factors, such as buildings with high occupancy that may have a greater degree of exposure than buildings with lower occupancy.

   EPA also notes that S is largely determined using radiological data that is qualitative or semiquantitative. While this approach may be appropriate when determining relative significance, it should not be used to set a baseline for information gathering that relies on qualitative or semiquantitative levels of data, as this will result in nondefensible conclusions. EPA believes that a quantitative risk level cannot be based solely on data below ASL D [Contract Laboratory Program (CLP) equivalent], unless DOE can show that data at lower ASLs are valid.

   To address these issues, EPA believes that (1) risk criteria, other than level of contamination, should be considered when determining S, and (2) the baseline data gathering, regardless of S level, should include confirmation using ASL D data.

5. Because the OU3 RI work plan omits specific sampling information, EPA will have to review and approve FIPs on an individual basis before work on any component can begin. This will result in the extensive review of over 200 FIPs, thus incurring excessive costs and schedule delays.

6. Components are not consistent between appendices. For example, the data tables in Appendix A do not match those in Appendix D. The components should be clearly defined and consistent between tables and appendices.

7. Based on a review of data contained in the OU 3 RI work plan, some areas at the Fernald site should be considered for removal actions. However, the OU3 RI work plan does not indicate how or at what stage candidates for removal action will be identified. For example, removal of underground storage tanks (UST) in the area of Garage 31 (Pages 2-115 and 2-116) has defined an area of contamination that should be considered as a removal action (RA). The RI work plan should indicate how and at what stage of the RI RA candidates will be identified. Furthermore, the existing reporting and notification process should be referenced in the RI work plan.

8. The work plan identifies four ASLs. ASL C is the lowest level that will require quantitative analysis in a laboratory. ASLs A and B requires analyses that will be performed in the field. EPA evaluated the overall breakdown of analysis by ASL. Ninety-two percent of the analyses will provide data that are of field-survey quality (Level A and B); 7.6 percent of the analyses will provide data that are not CLP equivalent; and 0.4 percent of the analyses will provide data that are of EPA CLP quality. As noted above, this mix of data quality will not provide data that can be used for a quantitative risk assessment, or provide sufficient information to determine the migration potential of contaminants.

9. There is no information presented on the specific data or rationale on why each component was ranked for U, F, and S. The OU3 RI work plan does not clearly state the criteria used to rank the components. These criteria should be included in the work plan. Furthermore, a summary should be provided for each component listing the rationale for each component's ranking.

10. The sampling and analysis plan (SAP) does not discuss how DOE will assess data quality. At a minimum, quality assurance (QA) criteria should be detailed for each ASL. Furthermore, DOE should recommend a procedure to verify data that were analyzed at ASLs A, B, and C. At a minimum, a fixed percentage of duplicate samples should be analyzed at a higher ASL to evaluate the data's validity.

11. The SAP uses terms throughout such as reasonable, where appropriate, when possible, and so on. Non-specific action phrases do not provide sufficient information for EPA to determine if the approach will meet the stated objectives of the RI. While it is

anticipated that some flexibility must be retained in the sampling program a definite plan must be presented.

12. Each section and subsection in Section D.5 of Appendix D should specifically identify which component is being addressed.

Throughout this section the SAP states that samples will be analyzed using ASL A/B, as appropriate. ASL A is defined on page D-24 as field screening, such as gross alpha radiation surveys. However, ASL B is defined as qualitative, semi-quantitative, or quantitative, which is too broad to accurately describe how samples will be analyzed. In addition, statements throughout the section referring to samples collected for ASL A/B are not sufficient to describe the sampling and analytical approach.

According to Page D-154, the lowest ASL that includes laboratory analysis is ASL C. The extensive use of field screening techniques with the general exclusion of any laboratory analysis will not result in data that can be used to determine quantitative risk to potential receptors. For example, in characterizing the waste and scrap metal piles (components P1 through P25) DOE proposes over 1,500 ASL A/B measurements, 11 ASL C measurements, and 3 ASL D measurements.

The frequency with which radiation meters will be used is based primarily on accessibility of sample location and S level. The frequency of measurement using radiation meters should also depend on other factors, including media heterogeneity, representativeness of data, and existing information. The current approach appears to be somewhat arbitrary. The approach appears to be structured so that highly contaminated (S3) surfaces are sampled more frequently. EPA notes that more highly contaminated surfaces may require less characterization than less contaminated (S1) surfaces, if contamination distribution is homogenous and sampling is representative.

13. The field procedures included in Volume IV do not include a general sampling approach or sampling objectives; nor do they provide rationale for determining sampling locations, numbers of samples, types of samples, or analytical parameters. Furthermore, they do not provide information about sampling or monitoring equipment, such as sampling components or calibration. Many procedures must still be developed and presented for EPA review. If field procedures presented in Volume IV are presented in more detail in the SCQ, it would be more appropriate to reference the SCQ and omit these procedures. Otherwise an appendix with complete field procedures should be provided.

14. The SAP does not provide specific analytical procedures for each of the ASLs. However, some analytical procedures have not yet been developed. This information is necessary to determine if the proposed sampling and analysis plan will meet the objectives of the RI/FS.

15. The work plan does not include any provision for EPA review and approval of FIPs and sampling and analytical procedures. As the document is written, EPA will have to review each FIP and new sampling procedure. The document should clearly detail the approval process for these deliverables by identifying key deliverables, the anticipated delivery date, and state that approval is required.

16. The four general objectives identified in Section 1.2 are not specific enough to focus the RI data gathering activities. For instance, one objective is to characterize radiological and chemical contamination at OU3. EPA notes that the level of characterization will depend on the intended data usage. It would be appropriate to have a high level of characterization if the purpose is to determine the disposition of waste; to accurately identify the volume of waste and the costs associated with remedial alternatives; to clear a component for reuse; or to justify no action. On the other hand, only limited information may be necessary to justify an immediate hazard requiring mitigation through an RA. DOE should provide an approach that more clearly (1) identifies the data usage requirements, (2) defines a phased approach to data gathering which identifies key decision making elements, (3) details data gathering elements to identify integrated approaches, and (4) defines how each data gathering element requirement will be met.

17. DQOs are discussed conceptually in Section 4.0 and summarized in Appendix D. Section 4.0 provides a complex framework for determining DQOs and provides a generic DQO form, which is an integral component of the SCQ. As presented, the DQOs are vague, requiring that key decisions be made within the FIPs. The steps for creating DQOs are provided, but it is unclear what the actual DQOs are. A succinct presentation of actual DQOs for each component should be provided. The DQOs should then be linked to the required ASL support level, corresponding analytical methods, and number of samples. Furthermore, DQOs and data needs should be broken down by S level and level I and II component categories to provide an overall framework.

The DQOs presented in the RI work plan are separate from those included in the SCQ for laboratory and field analytical procedures. The DQOs for laboratory procedures should be referenced and removed from this document.

18. Section 5.0 of the work plan provides a summary of OU3 RI tasks and Section 6.0 provides a schedule. The OU3 RI report is due to EPA in March 1996. Some reporting vehicle should be provided at an earlier stage to allow for EPA input in the decision making process. The complexity of the site will require modifications to the work plan. It may be appropriate to provide model FIPs as reviewable deliverables and to provide interim RI updates, perhaps on a semiannual basis.

19. Three sampling approaches are proposed: (1) judgmental, (2) systematic, and (3) random. A description of each method is provided in Table D-1. However, it is unclear how DOE will determine when each sampling approach will be used. The type of sampling should depend on factors other than S, F, and U. For instance, the amount of existing data, the heterogeneity of the media, the nature of contaminants, and the representativeness of the data could provide a basis for using any of the sampling approaches. A phased approach, where early studies of each media or category could be used to refine successive sampling approaches, should be used to determine the type of sampling approach to be used. If a phased approach were used, the sampling plan would not require rigid sampling frequency, ASL level, or standard approaches, but provide a basis for initial characterization and subsequent confirmation.

20. The SAP emphasizes the use of field screening equipment. While field screening is a valid investigative tool, the results are, at best, semi-quantitative. The SAP should provide procedures for confirming field measurements with defensible data (ASL D or E). The representativeness and reproducibility of all data from all ASLs should be definable. Field screening measurements are not an appropriate method of determining source concentrations for quantitative risk evaluation or fate and transport modelling.

21. According to the SAP, action levels (AL) and decision levels (DL) will be used as basis for field sampling decisions.

    ALs appear to be based on clearly defined statutory limits. However, ALs are only presented for radionuclides. Chemical contaminants have not been included. DOE should include chemical-specific ALs. These should be tabulated by matrix and level. Also, the relationship between preliminary remediation goals (PRG) and ALs should be clarified. Because PRGs are being developed simultaneously for OU5, DOE should include PRGs in the OU3 RI work plan.

    The process for determining DLs is vague and poorly defined. For instance, Section D.4.7.1 states "The DLs will be specified after the initial radiological survey measurements

have been taken and statistically evaluated. If a DL is defined after statistical evaluation of data, comparing the DL to the standard deviation seems redundant. It appears that the DLs are intended to define the necessity of additional information. The SAP should clearly define what the acceptable level of representativeness is and define when additional data are required.

22. There are inconsistencies between the summary tables presented in Appendix D. For instance, Table D-11 includes a list of analytical requirements for components by specific chemical groups, while Table D-19 lists ASLs for each component. The ASLs listed in Table D-19 do not appear to encompass required analyses in Table D-11. Also, Table D-11 is inconsistent with the data summary tables in Appendix A (Tables A.2 and A-3). The summary tables in Appendix A identify possible contaminants that are not listed for chemical analyses in Table D-11. Tables D-11 and D-19 should be modified to assure that proper chemical groups are analyzed and that the ASLs include all required chemical parameters.

SPECIFIC COMMENTS

1. Work Plan, Page 4-2, Paragraph 2. DOE states that "[a] FIP will be prepared for each individual component in OU3 at the time sampling and analysis is to be conducted." This statement should be clarified. The work plan should clearly indicate when FIPs will be developed, identify priority FIPs, and indicate that FIPs must be approved by EPA prior to implementation.

2. Work Plan, Page 4-8, Section 4.1.4. The section does not discuss the use of the F designator as a decision making tool. DOE should indicate how the F designator will impact sampling and analysis considerations.

3. Work Plan, Page 4-11, Paragraph 2. It appears that the S designator is the primary factor for determining DQOs. If the primary reason for sampling is to determine source terms, this should be clearly stated. However, this appears to contradict the DQO development procedure discussed in Section 4.2.2.

4. Work Plan, Page 4-14, Paragraph 2. The bulleted decision factors for making DQO decisions summarized here indicate that the data to be collected will be used for more than determining risk. If these factors are included in the OU3 RI, they should be clearly defined along with the adequate ASLs and analytical methods. However, the approach

appears too generalized to really assist in the preparation of FIPs that will not need a high level of review.

5. Work Plan, Page 4-16, Paragraph 2. Step 6 of the DQO development process will be used to establish acceptable levels of uncertainty. According to Step 6, levels of uncertainty will be established using analytical methods discussed in the SCQ. This portion of the process should focus on acceptable limits of uncertainty when characterizing contamination. It should assess factors that can be affected by the DQOs defined in the work plan. For example, it should define acceptable ASLs and acceptable levels of sample representativeness.

6. Work Plan, Page 4-18, Table 4.3. Table 4.3 should specify which field or laboratory analytical methods are associated with each ASL.

7. Work Plan, Page 4-19 through 4-21, DQO Summary Form. The model DQO summary form does not provide an adequate summary of the rationale used to determine the ASL, analytical method, or intended data use. For instance, item 3 indicates that any ASL can be used for any investigative method, yet the form does not provide the basis for making this decision. Secondly, item 4 indicates that one of the goals is to determine waste characteristics, including hazardous waste determination and hazardous substance list (HSL) contaminants (the first is ASL E; the second is ASL D); however, item 6B indicates that only ASL A, B, or C analysis will be conducted, and item 8 identifies QA protocol for ASL B. Finally, item 6A, which includes the analytical groups for HSL analysis, is not correctly completed.

8. Section D.2.2, Page D-8, Line 8. Analytical procedures used by the field analytical support facility must be submitted to the EPA for approval.

9. Section D.2.2, Page D-8, Line 14. Each FIP must be submitted to EPA for review and approval.

10. Section D.3.1, Page D-10, Line 16. In addition to the number and location of samples and the required analysis, each FIP must include (1) specific data need; (2) data use; (3) DQOs; and (4) analytical support level (ASL). This requirement can be waived if this information is presented in the OU3 RI work plan.

11. Section D.3.2, Page D-11, Line 11. The SAP states that data must be sufficient to support the risk assessment. The SAP also states that this can be accomplished by determining the

relative magnitude and migration potential of the contaminants. To complete a quantitative risk assessment and fate and transport modelling, the absolute level of contamination and migration potential should to be established. This paragraph, and all subsequent portions of the work plan predicated on the relative magnitude and migration potential, should be changed.

12. Section D.3.2, Page D-11, Paragraph 3. The PRGs, which are being developed in a separate document, should be referenced.

13. Section D.3.3, Page D-12, Line 28. EPA notes that DQO development, not the specific DQOs, is included in Section 4.2.2. of the work plan. As noted in general comment No. 17, this is a major shortcoming and specific DQOs should be developed.

14. Section D.3.4, Page D-24, Line 14. The SAP states that ASL B represents a broad range of analytical options yielding results that are qualitative, semiqualitative, and quantitative. This is too broad of a range to determine if the proposed sampling and analysis are adequate to meet the objectives of the RI. The SAP must clearly state which analyses are included in each ASL. In addition, Section D.7.3.8 states that ASL C is the lowest ASL that includes laboratory analysis. If this is the case, most of the sampling proposed in this SAP must be reconsidered to include much more ASL C data to support the RI objectives.

15. Section D.3.4, Page D-24, Line 16. The SAP states that raw instrument output will not be reported for ASL C. This practice precludes complete data validation of ASL C data. All data should be validated to the fullest extent possible. This is of the utmost importance, especially with the sampling approach proposed in this work plan.

16. Section D.4.1, Page D-25, Line 17. The SAP states that there may be changes in actual sampling based on further review of existing data. While this is expected, DOE should document all changes in the component-specific FIPs prior to submitting them to EPA for review and approval.

17. Section D.4.4.2, Page D-46, Line 8. The SAP should present the detection limit and interfering compound associated with field kits used to measure chemical contaminants (for example, PCBs).

18. Section D.4.4.2, Page D-46, Line 19. X-Ray fluorescence is a very matrix-dependent field analytical technique that requires extensive calibration. This SAP should slow how these limitations will be addressed.

19. Section D.4.5, Page D-47, Line 8. The DQO summary forms should accompany each FIP for review by EPA.

20. Section D.4.5.2, Page D-53, Line 10. The waste acceptance criteria should be defined as much as possible, prior to sample collection so that appropriate analyses can be conducted. Determining the waste acceptance criteria prior to sample collection will help prevent the need for additional sampling that could may impact the OU3 RI schedule.

21. Section D.4.6, Page D-53, Line 14 through 27. Each FIP should include all the information use to decide how many samples are needed, the sample matrix from which each sample will be delivered, appropriate ASL for each sample, and the type of analysis performed on each sample. See Comment Number 10.

22. Section D.4.6, Page D-54, Line 24. All documentation used to determine that a component is sufficiently characterized must be presented to EPA for review and approval.

23. Section D.4.7.2, Page D-58, Table D.9. Discrepancies exist between this table and Table 2.4, which presents the same information. These discrepancies should be reconciled.

24. Section D.4.7.2, Page D-59, Line 10. DOE should justify the choice of 30 times background as an AL.

25. Section D.4.7.2, Page D-61, Line 10. The environmental media action level for PCBs is inappropriate. Toxic Substance Control Act (TSCA) standards for the acceptable level of PCBs in a 100 square centimeter swipe sample would be more appropriate. Guideline action levels and sampling approaches are presented in 40 CFR 761 Subpart 19, and should be considered in the OU3 RO work plan.

26. Section D.4.10, Pages D-67 through D-73, Table D-11. Table D-11 is incomplete, inconsistent with Appendix A, and contains inappropriate chemical classifications.

The table is incomplete. For example, two components, included in Appendix A are not included: (1) tanks outside of plant 2 and (2) duratek test trailer. Furthermore, the table is inconsistent with Appendix A. Many of the contaminants and processes indicated in Appendix A are not considered in Table D-11. For example, the Metals Production Plant (5A) should include the following chemical contaminants which are identified as

contaminants of concern or associated with plant processes: (1) semivolatile organic compounds (SVOC), PCBs, and lead. Likewise, Plant 5 Ingot Pickling (5B) should include volatile organic compounds (VOC) as a class of chemical contaminants requiring analysis.

Finally, the table includes chemical classifications by analytical group. Each analytical group must represent analyses that can quantitatively identify individual suspect contaminants. For example, total petroleum hydrocarbons (TPH) are included as a chemical contaminant for many components where oil or waste oil is a contaminant of concern. It is inappropriate to use TPH analytical results to determine quantitative risks associated with oil or waste oil-related compounds. It would be more appropriate to use SVOC as the chemical contaminant.

In summary, Table D-11 should be revised to ensure that it is complete, that it accurately addresses suspect contaminants identified in Appendix A, and that chemical parameters indicated are appropriate to provide quantitative data on individual suspect contaminants.

27. Section D.4.11, Page D-75, Line 18. All modifications to the FIPs must be submitted to EPA for review and approval prior to sampling.

28. Section D.4.11.1, Page D-76, Line 18. All FIPs should include DQOs, number of samples, location of samples, and type and level of analysis required.

29. Section D.4.11.1, Page D-77, Line 21. The review of existing data should present the data quality levels (DQL) for the existing data and the effect these DQLs have on characterizing the magnitude and extent of contamination at each component.

30. Section D.4.11.1, Page D-6, Line 6. The SAP states that data will be validated to support DQOs. The data should be validated to the level required in the SCQ.

31. Section D.4.11.1, Page D-6, Line 10. Each FIP should justify the number of samples to be collected for each ASL analysis.

32. Section D.5, Page D-80, Line 13. The number assigned to each type of sampling protocol does not match that listed in Table D.12. This discrepancy should be reconciled.

33. Section D.5, All Subsections. For each of the twelve sampling protocols presented in Subsections D.5.1 through D.5.12, the SAP makes repeated statements concerning composite samples and required ASLs. Component-specific FIPs or the OU3 RI work plan must address each of the following comments on each of the areas presented below.

The FIP must state (1) why compositing is preferred method of characterization over several grab samples, (2) how many grab samples will be included in the composite, and (3) how the number and location of each element of the composite sample was selected.

The SAP makes several references to collecting samples for ASL B and C analysis in areas that exceed action levels (AL). ASLs B and C span field survey readings to laboratory analysis. The use of ASL B (nonlaboratory analysis) is not appropriate when characterizing areas that may present a significant risk to receptors. In addition, the SAP states that components initially characterized as significant level 3 (S3) will require ASL B and C analysis. Considering that S3 is the highest level of significance, a portion of these samples should be analyzed at ASL D.

34. Section D.5.1.1, Page D-88, Line 15. See specific comment No. 18.

35. Section D.5.1.1, Page D-88, Line 16. See specific comment No. 25.

36. Section D.5.1.3, Page D-92, Line 14. It is unclear when continuous and noncontinuous high volume air sampling will be used.

37. Section D.5.1.3, Page D-92, Line 22. The level of anticipated airborne contamination should also be considered when designing the air sampling program for each building.

38. Section D.5.2.1, Page D-93, Line 24. The SAP states that components designated as S1 will be sampled only if a problem is known. The definition of significance levels on Page 22 precludes any component with a known level of contamination to be classified as S1. At a minimum, the components that are classified as S1 should be sampled on a random basis to evaluate if contamination exists.

39. Section D.5.2.1, Page D-94, Line 26. Any swipe sample exceeding an AL must be subject to ASL C analysis. The use of ASL B (nonfixed laboratory analysis) is not appropriate when characterizing areas that may present a significant risk to receptors. This comment should be addressed throughout the SAP.

40. Section D.5.3.1, Page D-96, Line 27. The SAP states that areas at which leakage is evident will be monitored to a reasonable extent. If leakage from vessels is apparent, this is direct evidence of a release and the area should be sampled. These samples should then, at minimum undergo ASL D analysis.

41. Section D.5.3.1, Page D-98, Line 3. The SAP states that rinsate procedure may be used to sample some of the vessels. Additional information on this and all other sampling procedures must be developed and submitted to EPA for review.

42. Section D.5.7, Page D-108, Line 2. This section indicates that drummed materials will be sampled; however, Table D.19 states that no samples will be collected from any of the drummed materials, rather samples will only be collected from sea-land containers. The OU3 RI work plan should more clearly present which drummed material will be sampled.

43. Section D.5.7.1, Page D-110, Line 1. The SAP states that if ALs are exceeded, additional sampling may be required. If ALs are exceeded. additional sampling must be required and a portion of these samples should be analyzed at ASL D, at a minimum, to meet the objectives of the risk assessment.

44. Table D.13, Page D-132, Line 21. The footnote to this table states that 58 sampling procedures will need to be developed, 36 sampling procedures modified, and 20 sampling procedures are existing Feed Materials Production Center (FMPC) or Westinghouse Environmental Management Company of Ohio (WEMCO) sampling procedures. The SAP should state that all newly developed and modified procedures will be submitted to EPA for review. In addition, the modified FMPC and WEMCO procedures should be submitted as part of the SCQ.

45. Table D.17, Page D-140. This table indicates that many analytical procedures need to be developed or modified. All analytical procedures must be developed and submitted as part of the SCQ for review prior to any sampling.

US DOE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
RI/FS
OPERABLE UNIT 3
WORK PLAN ADDENDUM
DATED JUNE 1992
USEPA AIR TOXICS AND RADIATION BRANCH
RADIATION SECTION

SPECIFIC COMMENTS:

1. Volume 1, Section 3.2.3, Page 3-41, Paragraph 4:
Justification should be provided as to why the risk to off-site receptors will be based on average total contamination levels in individual components.

2. Volume 1, Section 3.3.1, Page 3-41, Paragraph 6, Line 26:
The reference to Section 300.430(b)8 of the National Contingency Plan (NCP) is incorrect. The section of the NCP, which provides that the identification of ARARs and other "to-be-considered" (TBC) criteria be initiated during the scoping phase of the RI/FS, is Section 300.430(b)9.

3. Volume 1, Section 4.2.1, Page 4-12, Paragraph 2, Line 4:
The number of samples or measurements to be taken will be dependant upon the uniformity of contamination, which is based on the initial data collected. This sampling strategy for each OU3 component would be strengthened if this section is expanded with regard to: 1) the minimum level of data requirements, 2) whether all the data requirements have been met and 3) the evaluation process used to validate the data.

4. Volume 1, Section 4.2.1, Page 4-12, Paragraph 3, Line 18:
State specifically which ASL will not be included in the initial sampling and analysis.

5. Volume 1, Table 4.8, Pages 4-58 through 4-64:
According to the baseline risk assessment strategy, the components within each level I/II category are to be sampled in the early period. Components 53A, 13D, and 39D are included in the conservative on-site baseline risk assessments (Table 4.7), but have been scheduled to be sampled in the late period. Clarify this discrepancy.

6. Volume 2, Table A.4.0, Page A-158:
Table A.4.0. provides a breakdown of potential contaminants by OU3 component. Justify why the Ore Refinery Plant (see page A-107) is not listed in this table as having any radiological contaminants. Also, Preparation Plant (1A) is not listed as having any radiological contaminants (see page A-106).

7. Volume 2, Table A.6, Page A-286:
Table A.6. presents a summary of uranium products broken down by enrichment code that are currently stored in various buildings. This table does not include uranium up to 20% enrichment, which was included as a potential contaminant in table A.3.0. Please check these tables for consistency.

8. Volume 3, Section D.2, Page D-8, Specific Task 1:
The OU3 sampling and analytical procedures should be submitted to the U.S. Environmental Protection Agency for approval before being added as addenda to the site-wide CERCLA Quality Assurance Project Plan.

9. Volume 3, Section D.2.2, Page D-8, Specific Task 5:
It is stated that "The data validation team will function in accordance with the SOQ data-validation procedures approved at the time of the validation." It is implied that the data validation procedures will be made-up as the sampling and the characterization progresses. If so, this is an unacceptable procedure; please clarify.

10. Volume 3, Section D.4.2, Page D-30, Table D.2:
Under the "Primary Isotope (half-life)" column, the half-life of Am-241 is listed as 232 years. The half-life of Am-241 is actually 432 years.

11. Volume 3, Section D.4.2, Page D-36, Paragraph 3, Sentence 4:
Uranium-233 can be identified by looking at its 4.824 MeV [84.4% yield] alpha particle energy which clearly sets itself apart from the U-234 .

12. Volume 3, Section D.4.4.1, Page D-45, Paragraph 1, Sentence 2:
The AL should be 20 μR/hr, not 20 μrem/hr. "R" is for Roentgen which is a unit used to express gamma exposure while "rem" is an absorbed dose equivalent. These units must not be used interchangeably and each unit must be used properly.

13. Volume 3, Section D.4.4.1, Page D-45, Paragraph 1:
A preferred instrument for environmental gamma radiation monitoring is a handheld micro-R survey meter. This type of meter uses scintillation crystal for detection and displays gamma exposure rate ranges as low as 0 → 25 μR/hr, making this survey meter well suited for measuring gamma exposures 20 μR/hr above background. A micro-R survey meter is also more stable and faster responding than a pressurized ion chamber and is available from several manufacturers.

14. Volume 3, Section D.4.7.2, Page D-57, Paragraph 2:
According to DOE Order 5400.5 (2-8-90), page IV-5, external gamma radiation levels on open lands or inside a building or habitable structure shall not exceed the background level by more than 20 μR/hr, not 20 μrem/hr.

15. Volume 3, Section D.4.7.2, Table D.9, Page D-58:
Justify why the maximum action level of 15,000 dpm/100 cm^2 is indicated in this table, when DOE Order 5400.5, page IV-6, states a maximum of 3,000 dpm/100 cm^2 for this radionuclide group.

16. Volume 3, Section D.4.8, Page D-62, Paragraph 2, Sentence 2:
The survey means and data quality assurances for the location of the sample points should be stated. Though a +/- .3 ft survey is adequate for locating radiological sample points, the ability to relocate those sample points should be guaranteed.

17. Volume 3, Section D.4.9.1, Page D-63, Paragraph 1, Sentence 1:
The conventional unit for stating alpha particle energies is "MeV" (millions of electron volts) and not "mev" (thousandths of electron volts).

18. Volume 3, Section D.5.1, Page D-86, Paragraph 1:
The initial definition of class A surfaces and class B surfaces is inconsistent with the definition examples of sections D.5.1.1 and D.5.1.2 (e.g., how can doors, windows, hoods, etc., be vertical and inaccessible surfaces?).

19. Volume 3, Section D.5.1.1, Page D-87, Paragraph 1, Sentences 2 and 3:
Justification is necessary as to why the 1000-ft^2 feature area size was selected; DOE Orders typically would state such areas in terms of square meters (m^2). Further, the measurement requirements should be more stringent to state the number of measurements for every particular feature area of 1000-ft^2 or less rather than each of 1000-ft^2.

20. Volume 3, Section D.5.1.1, Page D-87, Paragraph 1, Last Sentence:
The use of random number generation to determine the measurement location within the cell should be justified. Reasons should be given as to why common sense cannot be used to determine locations that are more likely to be radiologically contaminated.

21. Volume 3, Section D.5.1.1, Page D-87, Paragraph 3:
One sample per component may not be adequate to characterize the liquids within each component. Expand this section to explain how liquids within the components will be characterized.

22. Volume 3, Section D.5.1.2, Page D-90, Paragraph 2, Sentences 1,2 and 3:
Justification is necessary as to why the 360-ft^2 feature area size was selected; DOE Orders typically would state such areas in terms of square meters (m^2). Further, the measurement requirements should be more stringent to state the number of measurements for every particular feature area of 360-ft^2 or less rather than each of 360-ft^2.

23. Volume 3, Section D.5.1.2, Page D-90, Paragraph 4:
One sample per component may not be adequate to characterize the liquids within each component. Expand this section to explain how liquids within the components will be characterized.

24. Volume 3, Section D.5.1.3, Page D-92, Paragraph 2, Sentences 2 and 3:
Radon is ^{222}Rn (or Rn-222) while Thoron is ^{220}Rn (or Rn-220). This should be made the convention throughout the OU3 Work Plan Addendum.

25. Volume 3, Section D.5.1.3, Page D-92, Paragraph 6:
The grab sample method proposed may not fully characterize the radon levels within the components. Further explanation and justification should be given if integrating radon devices are not to be used. It is strongly recommended that integrating radon devices be used since five days are planned for radon measurements.

26. Volume 3, Section D.5.7, Page D-108, Paragraph 2, Sentence 3:
A "REM" is a unit of dose equivalence, not exposure. Please revise the text to reflect this.

27. Volume 3, Section D.5.11.1, Page D-119, Paragraph 2, Sentences 3 and 4:
It should be more clearly defined as to what are the cell dimensions or area within the noted grids. Also, the number of samples to be taken within each grid should be stated.

28. Volume 3, Table D.15, Page D-135:
The rational for developing the radiochemical analytic procedures described in the SOQ is to establish consistency between all laboratories performing the radiochemical analysis for the FEMP. Table D.15 identifies the radiochemical analytical procedures that will be used for each sample matrix. The various sample types within each sample matrix requires some modifications to the original SOQ procedure, or to some existing procedure that may have not been reviewed previously by the USEPA. Clarify if these modifications will be developed and mutually agreed upon by the DOE and all laboratories before any samples are analyzed. Also, state whether these modified procedures will be submitted for the USEPA for review.

29. Volume 4, Section D.I.2, Page D.I-5, Paragraph 4:
It should be stated that a pancake GM (geiger-müeller) probe monitors contamination from beta and gamma emitting radionuclides. This fact should also be stated in Procedure 605b.